

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Yoshikazu TANAKA et al.) Confirmation No.: 4016
Application No.: 10/583,110) Group Art Unit: Unassigned
Filed: June 15, 2006) Examiner: Unassigned
For: METHOD FOR PRODUCING YELLOW FLOWER BY CONTROLLING FLAVONOID SYNTHETIC PATHWAY)))
Commissioner for Patents U.S. Patent and Trademark Office Customer Window Mail Stop: New Applic Fee Alexandria, VA 22314	eation
Sir: <u>INFORMATION DISCLOS</u>	URE STATEMENT (IDS)
Under 37 C.F.R. § 1.97(b): Pursuant to 3 brings to the attention of the Examiner the docume the undersigned's knowledge, this IDS is being fil Action on the merits, before the mailing date of a RCE under § 1.114, or within three months of the	ents listed on the attached PTO Form 1449. To ed before the mailing date of a first Office first Office Action on the merits after filing an
Under 37 C.F.R. § 1.97(c): Pursuant to 3 to the attention of the Examiner the documents list is being filed after the events recited in § 1.97(b) be mailing date of a Final Office Action, a Notice of prosecution in the application.	out, to the undersigned's knowledge, before the
The fee of \$180.00 set forth in § 1.	17(p) is included herein; or
	f information contained in this IDS was first foreign patent office in a counterpart foreign nths prior to the filing of this IDS.
Under 37 C.F.R. § 1.97(d): Pursuant to 3 brings to the attention of the Examiner the document This IDS is being filed after the events recited in §	ents listed on the attached PTO Form 1449.
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Applicant respectfully requests that the Examiner consider the listed documents and evidence that consideration by making appropriate notations on the attached form. As for any document listed on the accompanying PTO-1449 that is in a language other than English, relevance can be understood from an enclosed English abstract or at least partial translation or from mention in the specification or in a search report for a corresponding application.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that any of the listed documents are material or constitute "prior art." If it should be determined that any of the listed documents do not constitute "prior art" under United States law, Applicant reserve the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should any of the documents be applied against the claims of the present application.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this Application, including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required and including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

DRINKER, BIDDLE & REATH LLP

Dated: April 13, 2007

CUSTOMER NO. 055694 DRINKER, BIDDLE & REATH LLP

1500 K Street, N.W., Suite 1100 Washington, D.C. 20005-1209

Tel: 202.842.8800; Fax: 202.842.8465

1/ Attorney Docket No.: Serial No.: INFORMATIO 47237-5008-00-US KE CITATION 10/583,110 Page 1 of 2 Applicants Yoshikazu TANAKA et al. PTO Form 1449 Filing Date: Group Art Unit: June 15, 2006 Unassigned U.S. PATENT DOCUMENTS *Examiner Document Sub Initial Number Date Name Class Class Filing Date FOREIGN PATENT DOCUMENTS Document Sub Translation Number Date Country Class YES Class NO WO 96-25500 08/22/1996 WIPO X JP 2003-289884 10/14/2003 Japan X (abstract) EP 1652916 05/03/2003 EP X OTHER DOCUMENTS (Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.) TANAKA et al., "Metabolic Engineering to Modify Flower Color," Plant Cell Physiol. 39(11), pp 1119-1126 (1998), Japanese Society of Plant Physiologists, Kyoto, Japan FORKMANN et al., "Metabolic engineering and applications of flavonoids," Curr. Opin. Biotechnol. 12:155-160 (2001) HARBORNE et al., "Comparative Biochemistry of Flavonoids – I. Distrubution of Chalcone and Aurone Pigments in Plants," Phytochemistry, 1966, Vol. 5, pp 111-115, Pergamon Press Ltd., England SAITO, Biohorti 1, pp 49-57, (1990) (in Japanese) FORKMANN et al., "Biosynthesis of Flavonoids," Comprehensive Natural Products Chemistry," Vol. 1, 1999, pp 713-748, Elsevier, Amsterdam DAVIES et al., "Flower Colour," Biotechnology of Ornamental Plants, 1997, pp 259-294, CAB International, Wallingford, UK ITOH et al., "Excision of Transposable Elements from the Chalcone Isomerase and Dihydroflavonol 4-Reductase Genes May Contribute to the Variegation of the Yellow-Flowered Carnation (Dianthus caryophyllus)," Plant Cell Physiol. 43(5), pp 578-585 (2002), Japanese Society of Plant Physiologists, Kvoto, Japan Plant Cell Physiol. Vol. 4, Supplement (2003), s158 DAVIES et al., "Production of yellow colour in flowers: redirection of flavonoid biosynthesis in Petunia," The Plant Journal (1998), 13(2), pp 259-266, Blackwell Sciences, Oxford, England NAKAYAMA et al., "Aureusidin Synthase: A Polyphenol Oxidase Homolog Responsible for Flower Coloration," Science, Vol. 290, pp 1163-1166, 10 November 2000, American Association for the Advancement of Science, Washington, DC MARRS et al., "A glutathione S-transferase involved in vacuolar transfer encoded by the maize gene Bronze-2," Nature, Vol. 375, pp 397-400, 1 June 1995, Nature Publishing Group, London, England SPRINGOB et al., "Recent advances in the biosynthesis and accumulation of anthocyanins," Natural Product Reports, Vol. 20, pp 288-303, 2003 LI et al., "Phylogenetic Analysis of the UDP-glycosyltransferase Multigene Family of Arabidopsis thaliana," The Journal of Biological Chemistry, Vol. 276, No. 6, Issue of February 9, 2001, pp 4338-4343, Journal of Biological Chemistry, American Society for Biochemistry and Molecular Biology, Baltimore MD YAMAZAKI et al., "Molecular Cloning and Biochemical Characterization of a Novel Anthocyanin 5-O-Glucosyltransferase by mRNA Differential Display for Plant Forms Regarding Anthocyanin," The Journal of Biological Chemistry, Vol. 274, No. 11, March 12, 1999, pp 7405-7411, American Society for Biochemistry and Molecular Biology, Baltimore, MD Examiner Date Considered Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Attorney Docket No.: 47237-5008-00-US

Page 2

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J = 1.0., 00.10., 0	YAMAZAKI et al., "Two flavonoid gl	ucosyltransfera	ses from P	etunia hvi	brida: mol	ecular clor	ing	sileu.)	
	biochemical properties and developme	ntally regulated	d expression	i," Plant l	Molecular	Biology, V	₅ , /ol. 48.	מם.	
	401-411, 2002, Kluwer Academic, Doi	rdrecht, Hollan	d		•				
	VOGT, "Substrate specificity and sequ	ence analysis of	define a pol	yphyletic	origin of b	etanidin 5	- and 6	-0-	
	glucosyltransferase from Dorotheanth	us bellidiformis	," Planta (2	002) 214	: pp 492-4	95			
	FUKUCHI-MIZUTANI et al., "Bioche Anthocyanin 3'-O-Glucosyltransferase	a Key Enzym	e for Blue A	racterizati Anthocya	ion of a No	thesis from	Glucos	e: ion "	
	Plant Physiology, July 2003, Vol. 132,	pp. 1652-1663	3. American	Society	of Plant Ph	uiesis, iroi vsiologists	Lanc	iaii, aster	
	PA								
	GUTERMAN et al., "Rose Scent: Gen	omics Approac	to Discov	ering No	vel Floral	Fragrance-	Relate	d	
	Genes," The Plant Cell, Vol. 14, 2325-	·2338, October	2002, Ame	rican Soc	iety of Pla	n Physiolo	gists,		
	Rockville, MD	raion of LIDD a	-l	:17	0 1 1	<u> </u>	<u> </u>		
	root cultures of Scutellaria baicalensis	HIROTANI et al., "Cloning and expression of UDP-glucose: flavonoid 7-O-glucosyltransferase from hairy root cultures of Scutellaria baicalensis," Planta (2000) Vol. 210, pp. 1006-1013							
	SAITO et al., "Enzymatic formation of					flowers."	Plant S	cience.	
	Vol. 160:229-236.				-			·	
	VOGT et al., "Cloning and expression of a cDNA encoding betanidin 5-O-glucosyltransferase, a betanidin-								
	and flavonoid-specific enzyme with his					from the S	Solanac	:eae,"	
	The Plant Journal (1999), 19(5), pp 50 MARTIN et al., "Molecular evidence f					- V-1 220	414-	1000	
	pp 46-48, The Nature Publishing Grou	n. London, En	ous angiosp oland	erin origi	ns, matur	e, voi. 339	, 4 Ma	y 1989,	
	MITSUHARA et al., "Efficient Promo			Expressi	on of Fore	ign Genes	in		
	Dicotyledonous and Monocotyledonou	s Plants," Plan	t Cell Physi	ology, 37	(1): pp 49	-59			
	van ENGELEN et al., "pBINPLUS: an					n pBIN19	," Trar	sgenic	
	Research 4, pp 288-290 (1995), Kluwe								
	AIDA et al., "Modification of flower co Plant Science, 153 (2000) pp. 33-42, E		(Torenia fo	urnieri Li	ind.) by ge	netic trans	format	ion,"	
	GONG et al., "Cloning and molecular a		ctural gene	involved	l in anthoc	vanin hios	vnthesi	is and	
•	expressed in a forma-specific manner in	n <i>Perilla frutes</i>	cens," Plan	t Molecu	lar Biology	, Vol. 35.	pp 915	5-927.	
	1997 Kluwer Academic Publishers, Do	ordrecht, Hollan	nd		_				
	SUZUKI et al., "Flower color modifica	ation of Toreni	<i>a hybrida</i> b	y cosuppr	ession of a	inthocyani	n biosy	nthesis	
Examiner	genes," Molecular Breeding, Vol. 6, pp	239-246, 200				s, Dordrec	nt, Hol	land	
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